Thrills & Chills

Activity 6  
On the Curves

Goals…

* Recognize than an object in motion remains in motion unless acted on by a force
* Explain how a force toward a fixed center will allow a car to travel in **circular motion**
* Describe how the **centripetal force** is dependent on the speed and the radius of the curve and the mass of the object
* Recognize that safety considerations limit the acceleration of a roller coaster to below **4g**
* Solve problems using the equation for centripetal force

For You To Read Key Points To Learn

* When acceleration changes in direction it is more difficult to calculate – you would need to use vectors
* You can also use: a = v2/R (R = radius of the circle)
* Centripetal force = a force directed towards the Click here to enter text. that causes an object to follow a circular Click here to enter text.
  + roller coaster Click here to enter text.
  + The tension of the Click here to enter text. on our toy car
  + Click here to enter text. between tires and road of car around a curve
* The direction of the force is always Click here to enter text. to point to the center
* Your large Click here to enter text. keeps you from Click here to enter text. when you are upside down
* Roller coasters use a Click here to enter text.loop –Click here to enter text. radius at the Click here to enter text. and Click here to enter text. radius at the Click here to enter text.
* This keeps the roller coaster from pulling more than Click here to enter text. at the bottom of the roller coaster See drawings on 281

What did you learn?

* In designing your roller coaster, you have to be sure that you provide Click here to enter text. to make the full circle
* At the same time, you Click here to enter text. to avoid the apparent weight being too great